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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,684

02/10/2004

Yoichiro Iwa

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42754

7590

11/02/2005

NIELDS & LEMACK
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EXAMINER

NGUYEN, SANG H

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,684

Applicant(s)

IWA ET AL.

Examiner

Sang Nguyen

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/01/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 06/01/04 has been entered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

Claim 1 is objected to because of the following informalities:

Regarding claim 1 line 2; the phrase "and the like" or "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like" or "and the like"), thereby rendering the scope of the claim(s) unascertainable. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

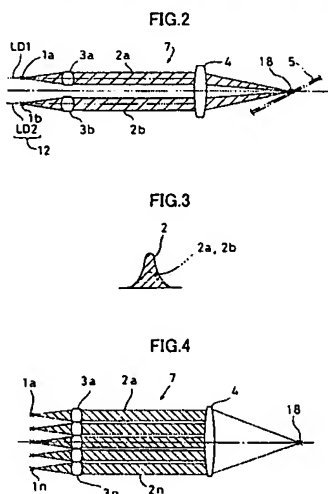
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 and 3 are rejected under 35 U.S.C. 102(a) as being anticipated by Isozaki et al (Pub. No. 2003/0103203 submitted by Applicant's IDS).

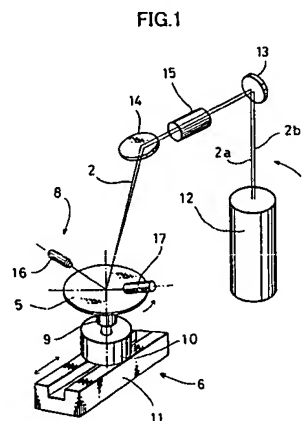
Regarding claim 1; Isozaki et al teaches a surface inspection apparatus (figure 1 and abstract) for detecting foreign matter (abstract) on a surface a substrate (5 of figure 1) by projecting and scanning laser beams (2a, 2b of figure 1) to the surface of the substrate (5 of figure 1), comprising:

a light source unit (12 of figure 1) for projecting two or more laser beams (2a, 2b of figure 1 or 2a-2n of figure 4), and a projecting optical system (7 of figure 1) for converging the laser beams (2a, 2b of figure 1 or 2a-2n of figure 4) by an image forming lens (4 of figure 4) so that the two or more laser beams (2a, 2b of figure 1 or 2a-2n of figure 4) are aligned in a row in a direction (paragraph 0086 and figure 4) of collimator lens (3a-3n of figure 4) perpendicularly crossing the scanning direction (paragraph 0074) at a projecting point (18 of figures 1-4) on the substrate (5 of figure 2). See figures 1-29.

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Regarding claim 3; Isozaki et al teaches said two or more laser beams (2a, 2b of figure 2) are emitted from two or more light emitting sources (LD 1 [1a of figure 2] and LD2 [1b of figure 2]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki et al (Pub. No. 2003/0103203) in view of Prior Art of Present Invention (figure 10).

Regarding claim 2; Isozaki et al discloses all of features of claimed invention except for each laser beam is superposed on the adjacent laser beam at the projecting point on the surface the substrate, and light intensity of the superimposed portion is approximately 50% or more with respect to the maximum value. However, PAPI teaches that it is known in the art to provide, at figure 10, each laser beam (figure 10) is superposed on the adjacent laser beam (figure 10, for example, it is indicated two beams are superposed at [P and 0.5 L of figure 10]) at the projecting point (figure 8) on the surface of the substrate (2 of figure 8), and light intensity of the superimposed portion (figure 10) is approximately 50% or more with respect to the maximum value (page 5). It would have been obvious to having ordinary skill in the art at the time the invention was made to combine a surface inspection apparatus of Isozaki et al with

each laser beam is superposed on the adjacent laser beam at the projecting point on the surface the substrate, and light intensity of the superimposed portion is approximately 50% or more with respect to the maximum value as taught PAPI for the purpose of inspecting surface with more accuracy in high resolution.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki et al (Pub. No. 2003/0103203) in view of Maeda et al (U.S. Patent No. 6,556,290).

Regarding claim 4; Isozaki et al discloses all of features of claimed invention except for said two more laser beams are obtained by splitting a laser beam emitted from a single light emitting source to two or more laser beams by an optical means. However, Maeda et al teaches that it is known in the art to provide said a single light emitting source (3 of figures 11-13) for emitting a laser beam (figure 13) to a beam splitter means (131 of figure 13 or 151 of figure 15) for splitting the laser beam (figure 13) into two or more laser beams (133, 134 of figure 13) to focus to the projecting point (figure 15) on the substrate (1 of figure 16). See figures 11-16. It would have been obvious to having ordinary skill in the art at the time the invention was made to combine a surface inspection apparatus of Isozaki et al with said two more laser beams are obtained by splitting a laser beam emitted from a single light emitting source to two or more laser beams by an optical means as taught Maeda et al for the purpose of reducing the number of laser sources to half the original number and the cost is also reduced (col.9 lines 60-63).

Regarding claim 5; Isozaki et al teaches all of features of claimed invention as indicate said two or more laser beams (2a, 2d of figure 2) emitted from said two or more light emitting sources (1a, 1b of figures 2) and Isozaki et al does teaches said two or more light emitting sources are guided by optical fibers respectively, and exit ends of the optical fibers are arranged in parallel to each other along a straight line. However, Maeda et al teaches that it is known in the art to provide said two or more light emitting sources (141-144 of figures 14-15) are guided by optical fibers (111 of figure 11 and 121 of figure 12 and col. 9 lines 15-43) respectively, and exit ends of the optical fibers (111 of figure 11 and 121 of figure 12) are arranged in parallel to each other along a straight line (figures 11-15 and 22-24). It would have been obvious to having ordinary skill in the art at the time the invention was made to combine a surface inspection apparatus of Isozaki et al with said two or more light emitting sources are guided by optical fibers respectively, and exit ends of the optical fibers are arranged in parallel to each other along a straight line as taught Maeda et al for the purpose of reducing the spatial coherence employs the phenomenon that when light rays with the optical axis shifted are incident to the optical fibers, the lateral mode of the exiting light rays changed (col.9 lines 28-32).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki et al in view of Maeda et al as applied to claims 1 and 5 above, and further in view of Bareket (U.S. Patent No. 5,889,593).

Regarding claim 6; Isozaki et al in view of Maeda et al discloses all of features of claimed invention except for the exit ends of the optical fibers are arranged two rows.

However, Bareket teaches that it is known in the art to provide the exit ends of the optical fibers of light bundles (62 of figure 3 and col. 5 lines 20-27) are arranged two rows (figures 3-4). It would have been obvious to having ordinary skill in the art at the time the invention was made to combine a surface inspection apparatus of Isozaki et al with the exit ends of the optical fibers are arranged two rows as taught Bareket for the purpose of destroying any spatial coherence between the individual light bundles output from the fibers of the bundle (col. 5 lines 30-33) and allowing an increase level of control over the light spot size at the sample (col.6 lines 3-4)..

Conclusion

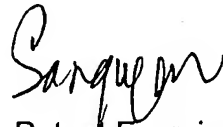
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Isozaki et al (6204918) discloses apparatus for surface inspection; Sekine et al (6104481) discloses surface inspection apparatus; Kusunose (6043932) discloses laser microscope and a pattern inspection apparatus; or Modell et al (6104945) discloses spectral volume microprobe arrays, or Peterson (5179422) discloses contamination detection system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 27, 2005


Patent Examiner
Sang Nguyen
Art Unit 2877